Response to ENTSO-E Draft Network Code for Operational Security

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Contacts:

EURELECTRIC:

Giuseppe LORUBIO – Advisor Energy Policy and Generation Unit - glorubio@eurelectric.org

Pavla MANDATOVA – Advisor Networks Unit – pmandatova@eurelectric.org

CEDEC: Marc Malbrancke, Coordinator CEDEC WG NC

marc.malbrancke@inter-regies.be

EDSO4SG: Florian Chapalain, Policy Officer

florian.chapalain@edsoforsmartgrids.eu

Geode: Carmen Gimeno, Deputy General Delegate

cgimeno@pratrubi.com

VGB: Joerg Kaiser

joerg.kaiser@vgb.org

November 2012

General Comments

Necessary harmonisation for TSO rules

The Network Codes drafted for cross-border issues on the basis of the Third Energy Package are meant to replace the various national TSO practices with European common rules, necessary for a coordinated operation of the EU power system. Such coordination is the precursor to the internal electricity market, and will contribute to maintaining security of supply in the most efficient way by ensuring better sharing of resources across Europe.

However, the draft Network Code on Operational Security leaves a large autonomy to individual TSOs in each control area (where NRAs/ACER apparently do not play any role) and seems to replicate current national operation rules. This is clearly not in line with the provisions of the Network Code on Capacity Allocation and Congestion Management (CACM), which has been forwarded to ACER for assessment. It is also not consistent with the target model aiming at a single electricity market in Europe that will ultimately require TSOs to act as one, or with the request, in the Framework Guidelines, for harmonisation and standardisation of operational procedures and standards.

In a well-integrated energy market uncoordinated actions by individual TSOs might severely affect the electricity flows across borders and therefore the security of supply of adjacent TSOs or even the whole system. While specific issues (like voltage control and reactive power management) are typically local, they should be the exception rather than the rule. In general, the operational protocol to maintain a secure system in normal and especially in emergency situations should be coordinated at least at regional level. A closely integrated market facing challenges from growing variable power production leaves no room for continued national orientation as promoted in the current draft.

The Network Code on Operational Security is described by ENTSO-E as an umbrella Network Code focusing on common principles applicable to all codes, but it lacks detailed facts and figures explaining such principles and new requirements introduced in other codes. In the same vein, the code contains no requirements for TSOs expressed in exact figures, frequently using wording like “sufficient” or “minimum” instead. In contrast, the Network Code Requirements for Generators (RfG) defines very detailed and concrete requirements regarding frequency and voltage ranges, clearance voltages and times for Fault Ride Through. The Network Code should set clear and comprehensible parameters and clear guidelines for specification at national level where necessary. TSOs must become familiar with all parts of the system for which they bear responsibility; they must know the limits of the system and what to do when the system approaches or surpasses a limit. TSOs should commit to operate their system within the ranges prescribed by existing standards[1]. In case of necessary system interventions in a state of alert or emergency, the limits set by the standards should be respected. In the absence of ‘hard limits’ set in accordance with these standards, TSO actions could result in loss of additional generation capacity as a result of disconnection by protection mechanisms or damage to the remaining generation capacity or load if no protection mechanism is in place. Whereas in the former case, the generation units would not be available for a few hours, the latter one could result in the unavailability of several units of similar type for several months as damaged turbine blades would have to be replaced.

[1] International Standard IEC 60034-1 for rotating electricity machines, which sets conditions for frequency ranges and voltage ranges in which power generating facilities should function safely.

The lack of precision in some articles may result in unjustified strengthening of the TSO role compared to other actors and while not taking into account their roles and responsibilities of others.

Impact on the market and reference to Balancing Framework Guidelines

The Network Code on Operational Security should also take the impact on the market into account. Requirements for and restrictions of market parties must be justified. Interventions outside market rules and agreements should be limited to emergency cases. Systems for remedial actions should be defined in cooperation between TSOs, DSOs and Significant Grid Users. Such systems should include provision of market-based compensation mechanisms to be specified in other codes. Both direct and indirect costs should be taken into account. In such cases, compensation should be foreseen. In this regard the Network Code on Operational Security should specifically refer to the Framework Guidelines on Balancing and to both the Framework Guidelines and the Network Code on CACM, wherever possible.

Coherence among codes & need for clear definitions and requirements

The code includes many cross-references to provisions expected to be defined in other codes (some of them being at this moment in a much earlier stage of drafting). The principle that every code must focus on its specific issue is not followed. For example, the draft Demand Connection network code (DCC) should focus on technical capabilities, but also includes a description of remedial actions for system operation. This is not comprehensible and does not allow the reader to validate such provisions.

Coherence regarding the content and development process of numerous network codes must be ensured, and interactions should be more visible for stakeholders. ENTSO-E should pay particular attention to the clarity and consistency of the network codes. Procedures for compliance and testing and investigation are described in the Requirements for Generators Network Code and the Demand Connection Code but also in this Network Code. Data exchanges regarding the scheduled operation of power plants are described in this Network Code, but also in the Network Code Operational Planning & Scheduling. This will lead to diverging interpretations in practice. Related requirements set in different codes must be properly defined and adjusted without undue duplication to avoid disputes in implementation and interpretation. For example, the provisions on coordination and cooperation of TSOs in this code are far less extensive than in the CACM Network Code.

Clear definitions and requirements are of utmost importance to avoid problems and misinterpretations when the codes are finally implemented at national level. Definitions in different codes should be harmonised and unclear overlap or “double meaning” for the same expression should be avoided as this could lead to major conflicts and legal debates in the implementation of the NCs.

For example, the code uses some terms without clearly defining them, e.g. ‘TSO’, ‘DSO’, ‘Relevant DSO’, ‘Power Generating Facility’, ‘Power Generating Module’. This also applies to the definition of Significant Grid Users where the FG requires the NC to set clear and consistent criteria on their characteristics for influencing the cross-border power system and a transparent decision process to fulfil the criteria of “significance test”. Consistency with definitions in other network codes has to be ensured. It remains unclear throughout several provisions in the draft NC to which DSO or Significant Grid User they are applicable, thus creating legal uncertainty. Definitions of ‘Control Area’, ‘Responsibility Area’ and ‘Observability Area’ seem to overlap.

For maximal consistency between various network codes, we recommend that ENTSO-E publishes one single dictionary (definition list), containing all definitions that are now fragmented among various codes. This dictionary should be used as a single reference and would thus avoid any ambiguity that can now be observed in various network codes, where different definitions are given for the same terms (e.g. "demand facility" in DCC and OS code). Stakeholders must be involved and properly consulted in the process of drafting such a dictionary, as the clarification of terms may lead to significant changes, including *inter alia* a broadening of the applicability of some requirements.

Last but not least, it should be avoided that information to be provided by Significant Users creates unnecessary double reporting from requirements in different codes. Moreover, the data set to be provided should be clearly defined, harmonised between different codes and delivered only once in order to ensure full coherence and minimise cost expenditure.

Adequate stakeholder involvement

The network codes will impose requirements throughout the entire value chain, including generators, DSOs and demand. We welcome the establishment of the DSO Technical Expert Group, as DSOs will be largely affected by network codes on system operation. Other relevant stakeholders should also be involved much more proactively in the process of drafting the network codes. The establishment of Advisory Stakeholders Groups for drafting the CACM Network Code, Forward Markets Network Code and Electricity Balancing Network Code has not been replicated in the case of the System Operation Network Codes. This difference in consultation approach is difficult to understand.

Roles and responsibilities

Most new generation, in particular renewable, is or will be connected to distribution networks. Similarly, most of the demand side flexibility will be developed within distribution networks. The decentralisation of the electricity system and active distribution networks implies evolving roles and responsibilities of both network users and network operators. Distribution areas need to be considered as systems and no longer as 'mere' networks. DSOs and TSOs will have to cooperate in order to maintain electricity systems in balance and ensure an adequate power quality. Taking this evolution into account, the system operation codes must clarify the roles of TSOs and DSOs in system operation, as also required by ACER FG on System Operation (p. 16).

The EU network codes should only define requirements for DSOs that are needed from the overall system security perspective (see comments on 'Relevant DSO' below), while respecting the following principles:[2]

1. every system operator is responsible for monitoring and control of their networks in order to ensure operational security;
2. any action on generators or demand facilities connected to one network has to be managed by the system operator responsible for that network, even if this action has been requested by another system operator;

[2] EURELECTRIC position paper on Network Codes for System Operation, September 2012

3. structural and real-time operational information are provided to the connecting system operator by the connected system operator's substation/Producer/Final Customer. DSOs provide the TSO to whose network they are connected with information about significant users connected to their network. Information on MV and LV users are provided only at aggregated level.

In short, each network operator is responsible for connected customers – loads as well as generation. A situation where a TSO directly or indirectly controls the operation of demand and production units connected to a DSO could have a severe impact on assets and/or connected customers (ie due to increased voltage variations).

DSO Issues

Applicability to 'Relevant DSO' & Cost-benefit analysis

The way the draft network code reads is that it automatically applies to all DSOs while 'Relevant DSO' is referred to in many places of the text. There are two issues in this context:

- The definition 'Relevant DSO' is already used in the network codes on grid connection with a different meaning. For example, in the network code RfG it is defined as *"the DSO to whose Network a Power Generating Module is or will be connected".*
- The meaning of 'Relevant DSO' is not defined at all. We therefore propose to use "Significant DSO" instead of "Relevant DSO' and insert a clear definition for "Significant DSO".

We acknowledge that the proposed requirements for information exchange between TSO and DSO etc. are/will be necessary for the secure interaction of distribution systems with a high penetration of distributed energy resources (DER) on the one hand and transmission systems on the other. However, due to the diversity of distribution systems and differences in penetration of intermittent distributed generation, a one-size-fits-all approach cannot be applied, as stated in the position paper published earlier[2]. In order to reflect this and ensure the most efficient system solutions, the requirements set forth by this network code shall apply to 'Significant DSOs' – DSOs that influence the transmission system and overall system security. The code should clearly set a mechanism for this decision that the National Regulatory Authority (NRAs) should follow when deciding in a national process following Art 3(3) which DSO is 'Significant'. This mechanism should take into account the voltage of the networks the DSO operates and the level of penetration of DER in its network and be sufficiently forward-looking. This approach would allow for the necessary flexibility and future redefinition of the applicability (DSO 'significance'). It has to be ensured that equivalent situations are treated in the same way in all countries to avoid discrimination. The definition of Significant DSO/Significant Grid User must also be adjusted with the definition from other codes, in particular those stemming from the RfG NC.

The Framework Guidelines require a cost-benefit analysis for requirements deviating from current standards and practices. Taking into account the diversity described above, new requirements for the distribution grid and their users that deviate from existing ones and imply new investments in technology, including requirements for information exchange, should be subject to a mandatory

quantitative cost-benefit analysis at national level in order to achieve the highest cost-efficiency for society. Existing systems should continue to be used as appropriate.

The proposals made on issues related to 'Significant DSOs' listed in Annex 1 should be read in the context of the arguments above and the fact that a one-size-does-**not**-fit-all approach should be applied in distribution networks.

Cost-recovery

Any new requirements and tasks set in this network code, for both new and existing facilities, require additional costs, manpower and equipment. Such a cost will arise in particular from requirements on testing and investigation (Chapter 3) and data exchange (Chapter 4). Network operators and users should be able to recover their efficient costs. Efficient DSO costs resulting from necessary adaptions of the existing grid (i.e. new installations) as well as related administrative costs should be recognised by national regulatory authorities. The network code should be coherent with other network codes (i.e. Requirements for Generators, Demand connection code) and clearly state that the costs related to the obligations referred to in this Network Code which have to be borne by regulated Network Operators shall be assessed by National Regulatory Authorities and that costs assessed as reasonable and proportionate shall be recovered in a timely manner via network tariffs or appropriate mechanisms as determined by National Regulatory Authorities.

Information exchange, congestion management & voltage control

DSO needs adequate knowledge of the operational data from end users (load and generation) connected to their networks in order to ensure security of supply and quality of service in their networks. As the code already requires, DSO(s) should provide the TSO with the operational information on significant grid users, both generators and demand facilities. TSOs should not act on any individual DER embedded in distribution networks. A parallel data exchange between TSOs and generators demand facilities connected to distribution systems required by the code (articles 26 & 28) would lead to double reporting and double cost. This solution is thus not preferable and should be used only in exceptional cases when it is demonstrated that it is the most cost-efficient option and does not affect the security of any network. In any case the DSO must be fully involved in the exchange of information.

Significant DSOs also need the information on the generation connected to the transmission network in the geographical zones in which they operate (Observability area for the DSO), because changes in that generation can affect the operation of the DSO's network and may influence the DSO's network planning. Such information should be provided by the relevant TSO.

Voltage control requires a system approach taking into account both overall system security and optimisation of thermal losses. Requirements for the TSO-DSO connection point should continue to be defined in contracts. Alternatively, the limits on the power factor at the TSO-DSO interface should be subject to a national consultation and a cost-benefit analysis should be carried out (in accordance with art. 3(3)). Adequate contribution of generators connected to the distribution grid is likely to play an important role in managing challenges of voltage and reactive power management in distribution grids.

For more information on the role of DSOs, information exchange, congestion management and voltage control see the EURELECTRIC position paper on 'Network Codes for System Operation'.

	Article	Par.	S.par.	Initial	Proposed	Justification	Type of Comment	Nature of Comment
DSO comment	Purpose and objectives			(3) Transmission System Operators (TSOs) are according to Article 2 of Directive 2009/72/EC responsible for operating, ensuring the maintenance of and, if necessary developing the extra-high and high voltage interconnected system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity. TSOs are also responsible for the Operational Security of their Control Areas and together in the whole Synchronous Areas and the European Union, with a high level of reliability and quality.	Remark: Reference to Art 2 of Directive 2009/72/EC should mention also DSO responsibility for operating their networks.	The DSOs are also reponsible for the Operational Security of their Control Areas. This should be reflected in the different chapters.	legal	fundamental
DSO comment	Purpose and objectives			(10) Measuring and monitoring operational parameters in order to estimate the System State is the first step required for activities and applications to maintain Operational Security. State Estimation throughout the EU in a common and coherent way supports communication between Transmission System Operators and where necessary with Distribution System Operators and Grid Users.	(10) Measuring and monitoring operational parameters in order to estimate the System State is the first step required for activities and applications to maintain Operational Security. State Estimation throughout the EU in a common and coherent way supports communication between Transmission System Operators **and Significant Distribution System Operators and when** necessary with **other** Distribution System Operators and Grid Users.	Significant DSO with high voltage networks also estimate the System State. These DSOs need measurements and operational parameters from the network above (real-time data).	legal	fundamental
DSO comment	Purpose and objectives			(12) At a local level, Transmission System Operators should apply voltage control and reactive power management, in order to keep voltages within the Operational Security Limits and to minimize reactive power flows.	(12) At a local level, Transmission System Operators **and Significant Distribution System Operators** should apply voltage control and reactive power management **in their grids in a co-operative way**, in order to keep voltages within the Operational Security Limits and to minimize reactive power flows;	Significant DSOs should be able to apply the same management.	legal	fundamental
DSO comment	Purpose and objectives			(13) Transmission System Operators should deploy short-circuit management in order to calculate the short-circuit currents within and beyond the borders of Control Areas and thus to ensure adequate treatment of short-circuit Faults.	(13) Transmission System Operators **and Significant Distribution System Operators** should deploy short-circuit management in order **to calculate** the short-circuit currents within and beyond the borders of Control Areas and thus to ensure adequate treatment of short-circuit Faults.	The DSO reponsibility is the short-circuit management in the DSO network. In some cases this is needed for the reserve of power plant supply.	legal	fundamental
DSO comment	Purpose and objectives			(18) The Operational Security of the transmission system and all the activities which contribute to it require an accurate, timely and adequate exchange of data and information. Data exchange should therefore not encounter any barrier between the different actors involved in ensuring the Operational Security.	(18) The Operational Security of the transmission system **and distribution system** and all the activities which contribute to it require an accurate, timely and adequate exchange of data and information. Data exchange should therefore not encounter any barrier between the different actors involved in ensuring the Operational Security. **In the same time data exchange should be limited to necessary data and appropriate formats to ensure the most cost-effective approach.**	Significant DSOs should also have the possibility to receive the necessary data and information, because of their responsibilites on their grids. Need for data sholud be defined taking into account economic basis.	legal	fundamental
DSO comment	1	1		This Network Code defines the minimum Operational Security requirements and principles for transmission systems applicable to all TSOs, relevant DSOs and Significant Grid Users.	This Network Code defines the minimum Operational Security requirements and principles for transmission systems applicable to all TSOs, **Significant DSOs** and Significant Grid Users.	"Significant DSO" to be used instead of "Relevant DSO" as Relevant is used in RfG and DCC with a different meaning.	legal	fundamental
DSO comment	1	2		This Network Code aims at: a) determining common Operational Security requirements and principles; b) ensuring conditions for maintaining Operational Security throughout the EU; c) providing for coordination of system operation; d) determining common requirements for DSOs which are relevant for Operational Security of the transmission system and Significant Grid Users.	This Network Code aims at: a) determining common Operational Security requirements and principles; b) ensuring conditions for maintaining Operational Security throughout the EU; c) providing for coordination of system operation; d) determining common requirements for Significant DSOs which are relevant for Operational Security of the transmission system and Significant Grid Users. **e) determining common requirements for TSOs to ensure Operational Security** **f) determining common requirement for TSOs which are relevant for Operational Security of Significant DSOs.**	Requirements for TSOs need to be clarified in this code. Operational Security concerns both TSOs and Significant DSOs. Significant DSOs need information from TSO, DER and other DSOs to assist with constraint management in their networks that could have an adverse impact on the overall system security.	legal	fundamental
DSO comment	1	3		In the small isolated systems for which a derogation has been granted in application of Article 44 of Directive 2009/72/EC and in the isolated systems which do not present any cross-border network issues or market integration issues, in the absence of transmission system, the provisions of this Network Code shall not apply. DSOs shall nevertheless take fully into account the provisions of this Network Code when adopting their own network codes on Operational Security.	In the small isolated systems for which a derogation has been granted in application of Article 44 of Directive 2009/72/EC, **other isolated systems which applied for and are granted a derogation from its NRA** and in the isolated systems which do not present any cross-border network issues or market integration issues, in the absence of transmission system, the provisions of this Network Code shall not apply. DSOs shall nevertheless take fully into account the provisions of this Network Code **in formulating their own approach to network security**	Not appropriate for DSOs to be forced by this network code to have their own legally binding Network Code. This is a matter for each NRA.	legal	fundamental
DSO comment	2			-	**General remark:** Clarification of the difference between the different kind of "areas" defined is necessary. There are 4 different kind of area defined: - Synchronous area - Observability area, area on which TSO shall implement ...to ensure reliability of the respective Responsibility Area. - Control area, part of the Transmission System controlled by one single TSO. - Responsibility area, also operated by one single TSO. **Proposal for redefining Responsability area and Control area:** **Responsibilty area = all assets for which TSO is responsible for maintaining operational security limits** **Control Area: territory in which for all access points (be it transmission or distribution grid), the ARP or BRP has a contract with one single TSO** **This would make all proposed amendments to replace responsibility area by control area unnecessary.**	As written, it is difficult to make a difference between control area and responsibility area and between observability area and responsibility area. **Should the Obervability Area be the same for the Structural data requirements (e.g. Art. 19) and the real-time data requirements (e.g. Art. 20) ?** **Furthermore, the definition of Contingency (which encompasses distribution networks) is totally inconsistent with the definition of Control Area (which is strictly limited to Transmission Systems)**	legal	fundamental
DSO comment	2	2		Demand Facility means a facility which consumes electrical energy and is connected at one or more Connection Points, to the exclusion of distribution networks and auxiliary supplies of a Power Generating Facility which do not qualify as Demand Facilities;	Demand Facility **is** a facility which consumes electrical energy and is connected at one or more Connection Points **to the Network. For the purpose of avoidance of doubt a Distribution Network and/or Auxiliary Supplies of Power Generating Modules are not a Demand Facility.**	Alignment with the definition of Demand Connection code is necessary	technical	fundamental
DSO comment	2	2		Observability Area means the area of the relevant parts of the transmission systems, relevant DSOs and neighbouring TSOs, on which TSO shall implement a real-time monitoring and modelling to ensure reliability of the respective Responsibility Area;	Observability Area means the area of the relevant parts of the transmission systems, Relevant DSOs and Neighbouring TSOs, on which TSO **or Significant DSO** shall implement a real-time monitoring and modelling to ensure reliability of the respective **Control** Area"	Significant DSO needs also to perform a real-time monitoring and modelling to ensure reliability of its network and to avoid affecting overall system security and cross border flows. This is in line with article 5.2. Reliability of the distribution system is a DSO task.	technical	fundamental

	Article	Par.	S.par.	Initial	Proposed	Justification	Type of Comment	Nature of Comment
DSO comment	2	2		Operational Security means the transmission system capability to retain a Normal State or to return to a Normal State as soon and as close as possible, and is characterized by thermal limits, voltage constraints, short-circuit current, frequency reference value and stability limits;	Operational Security means the **Electric** System capability to retain a Normal State or to return to a Normal State as soon and as close as possible, and is characterized by its thermal limits, voltage constraints, short-circuit current, frequency reference value and stability limits;	Operational Security affects not only the Transmission System capability but also the Electric System capability including the Distribution System capability.	technical	fundamental
DSO comment	2	2		Operational Security Limits means the acceptable operating boundaries: thermal, voltage, Fault levels, frequency and stability limits;	Remark: clarification needed for using the term 'acceptable'.	What does 'acceptable' mean? Concrete figures for Operational Security Limits are not given, not here, not elsewhere in the code.	technical	fundamental
DSO comment	2	2		Ordinary Contingency means the non-unusual loss of a transmission system element such as, but not limited to, a single line, a single Power Generating Facility, a single transformer, a single phase-shifting transformer, a voltage compensation installation of 50 MVAr or more or a DC link;	Remark: clarification needed.	Ordinary contingency does not include a fault at a bus bar. It is not clear what the consequences of this definition will be.	technical	fundamental
DSO comment	2	2		-	Significant DSO means generally a DSO that influences transmission system and overall system security. The National Regulatory Authority shall decide on whether a DSO is Significant or not, based on the assessment that takes into account the voltage of the networks the DSO operates on and the level of penetration of distributed energy resources in its network.	The concept "Significant DSO" is often used across the text but not defined. Diversity of DSOs across Europe has to be taken into account, regarding the voltage they operate and the amount of distributed generation connected to their networks. Significant DSOs may influence overall system security and cross border issue. A one size fits all approach cannot be applied as is not efficient - this should be taken into account when defining rules for DSOs. Mandatory cost benefit analysis for deviating requirements as a condition to applicability at national level.	technical	fundamental
DSO comment	2	2		Schedule means the reference set of values of energy or power within a future time period and for a resolution time interval. Schedules refer to: a) Commercial exchange between different market participants; b) Generation program of a particular Power Generating Facility or the aggregation of generation programs of a group of Power Generating Facilities, termed also generation schedule; c) Demand program of a particular Demand Facility or the aggregation of consumption programs of a group of Consumption Units, termed also consumption schedule; d) Planned exchange of energy between Market Balance Areas on a given time interval and at a given time resolution. These Market Balance Areas might belong to different Synchronous Areas and might be none neighbouring; e) Aggregated cross-border exchange programme aggregated programme of the exchange across the Control Area borders;	Remark: Align the defintion of Schedule between the different system operation codes.	Not 100% in line with the same concept in the NC OP&S.	technical	editorial
DSO comment	2	2		System Operator Employee means the person in charge of the operation of the transmission system in real-time;	System Operator Employee means the person in charge of the operation of the Transmission **or Significant Distribution System** in real-time;	DSOs are also System Operators.	technical	fundamental
DSO comment	2	2		Transitory Admissible Overloads means the temporary overloads of transmission system elements or secondary equipment which are allowed for a limited period in case of switching or Fault and which do not cause physical damage to the elements or secondary equipment as long as the defined duration and thresholds are respected;	Transitory Admissible Overloads means the temporary overloads of transmission system elements or secondary equipment **(such as ...)** which are allowed for a limited period in case of switching or Fault and which do not cause physical damage to the elements or secondary equipment as long as the defined duration and thresholds are respected;	What is meant by "secondary equipment"? Please define.	technical	editorial
DSO comment	4	1		The costs related to the obligations referred to in this Network Code which have to be borne by regulated transmission system Operators shall be assessed by National Regulatory Authorities.	The costs related to the obligations referred to in this Network Code which have to be borne by regulated **network operators** shall be assessed by National Regulatory Authorities.	Alignment with other network codes (RfG, DCC) is necessary. Implementing the code will have a cost, both for the TSO and the DSO. Thus, the DSO should explicitly be included in this article (in line with other NCs).	legal	fundamental
DSO comment	4	3		If requested by National Regulatory Authorities, regulated Transmission System Operators shall, within three months of such a request, use best endeavours to provide such additional information as reasonably requested by National Regulatory Authorities to facilitate the assessment of the costs incurred.	If requested by National Regulatory Authorities, regulated **network operators shall,** within three months of such a request, use best endeavours to provide such additional information as reasonably requested by National Regulatory Authorities to facilitate the assessment of the costs incurred.	Same justification as for art. 4.1. Implementing the code will have a cost, both for the TSO and the DSO. Thus, the DSO should explicitly be included in this article.	legal	fundamental
DSO comment	5	2		Without prejudice to the obligation to preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its activities, each TSO shall provide to the operator of any other transmission system with which its system is interconnected, sufficient information to ensure the secure and efficient operation, coordinated development and interoperability of the interconnected system.	Without prejudice to the obligation to preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its activities, each TSO shall provide to the operator of any other system with which its system is interconnected, **DSOs included,** sufficient information to ensure the secure and efficient operation, coordinated development and interoperability of the interconnected system.	DSOs are also connected to TSOs and need information to ensure the secure and efficient operation in their systems.	technical	fundamental
DSO comment	6	9		When preparing and implementing a Remedial Action which has an effect on other TSOs, a TSO shall cooperate with the affected TSOs to assess the impact of its Remedial Action within and outside its Responsibility Area and coordinate with affected TSOs to select the action which is in accordance with the principle of optimisation between the highest overall efficiency and lowest total cost for all involved parties. Each affected TSO shall provide all the information necessary for this cooperation.	When preparing and implementing a Remedial Action which has an effect on other TSOs, a TSO shall cooperate with the affected TSOs to assess the impact of its Remedial Action within and outside of its **Control Area** and coordinate with affected TSOs to select the action which is in accordance with the principle of optimisation between the highest overall efficiency and lowest total cost for all involved parties. Each affected TSO shall provide all the information necessary for this cooperation	At this level coordination should be assessed at transmission levels.	technical	fundamental
DSO comment	6	10		When preparing and implementing a Remedial Action, a TSO shall, when necessary, cooperate with the Significant Grid Users and DSOs. Each Significant Grid User or DSO shall execute the instructions given by the TSO to support maintaining Operational Security of the transmission system, without undue delay. Unless decided otherwise by the TSO, the relevant DSO shall communicate the instructions of the TSO to the Significant Grid Users if the latter is connected to the distribution network.	When preparing and implementing a Remedial Action, a TSO shall, when necessary, cooperate with the Significant Grid Users and **Significant** DSOs. **DSOs shall participate in the preparation and implementation of the Remedial Action if an affected element is within or connected to distribution network**. Each Significant Grid User or DSO shall execute the instructions given by the TSO to support maintaining Operational Security of the Transmission System, without undue delay. **The Significant DSO** shall communicate the instructions of the TSO to the Significant Grid Users if the latter is connected to the distribution network u**nless a different procedure is agreed between the Significant DSO and the TSO. Any such instructions has to be in accordance with the commercial and contractual agreements in place, including for procurement of ancillary services and/ or related plans for emergency cases .**	This formulation can be understood as an action decided by TSOs on one significant grid user on the network. For instance, in case of need for curtailment on TSO network, TSO should send a signal to Significant DSO, **unless both parties agree differently - it can not be a unilateral decision by the TSO**.No formal operational relationship between TSO and generators connected at the distribution level. DSOs are responsible for Operational Security in their Networks. If DSOs are not considered at this level overall system security could be affected. All instructions issued to generators by TSOs and DSOs must comply with the terms of the connection/contractual agreements, including ancillary services agreements e.g. for instructions relating to frequency control, reserve and voltage control.	technical	fundamental
DSO comment	6	13		Each TSO shall adopt an Emergency Plan which shall be reviewed at least annually and updated as required or following any significant change of critical tools and facilities or relevant system operation conditions.	Each TSO shall adopt an Emergency Plan which shall be reviewed at least annually and updated as required or following any significant change of critical tools and facilities or relevant system operation conditions. **Parts of the Emergency plan shall be shared with DSOs and Significant Grid Users to the extent to which they are affected**.	The "significant grid user" definition is already considering the significance of these users. Also, to be effective, where emergency plans involve third parties, those parties must be fully engaged.	technical	fundamental

	Article	Par.	S.par.	Initial	Proposed	Justification	Type of Comment	Nature of Comment
DSO comment	7	5		Each TSO shall implement the necessary Remedial Actions, including Demand Side Management or Load Shedding in order to maintain the frequency quality within Operational Security Limits in its Responsibility Area.	Each TSO shall implement the necessary Remedial Actions, including Demand Side Management or Load-Shedding in order to maintain the frequency quality within Operational Security Limits in its Responsibility Area. **If demand is connected to distribution network, affected DSO shall participate in the process. The applied Load Shedding schemes shall be harmonised whithin each synchronous area.**	Not involving DSOs in DSM connected to their network could jeopardize security of supply and the quality of service of distribution networks. This could also affect overall system security and cross border flows. More deails needed. Harmonization for load shedding schemes is needed.	technical	fundamental
DSO comment	7	7		Notwithstanding the provisions of Article 7(5), a DSO, Power Generating Facility or Demand Facility shall automatically disconnect at specified frequencies if required by the relevant TSO or DSO. The relevant TSO and DSO shall define the terms and settings for automatic disconnection while respecting the provisions of Article 3(3), Article 7(6) and the requirements specified for the whole Synchronous Area in the [NC RfG]. When the DSO defines this terms and settings, it shall obtain the TSO's approval.	Notwithstanding the provisions of Article 7(5), a DSO, Power Generating Facility or Demand Facility shall **be** automatically **disconnected** at specified frequencies if required by the **Significant** TSO or DSO. The **Significant** TSO and DSO shall define the terms and settings for automatic disconnection while respecting the provisions of Article 3(3), Article 7(6) and the requirements for operational security specified for the whole Synchronous Area in the [NC RfG].	Settings shouldn't be approved by the TSO, but agreed upon between the DSO and the TSO. This code should not specify requirements for operators and Users which are not defined as Significant. Any changes to existing Facilities will incur costs and must be fully justified in a CBA.	technical	fundamental
DSO comment	8	1		In accordance with Article 6(4), each TSO shall endeavour to maintain the voltage and reactive power flows within Operational Security Limits. Each TSO shall monitor, control and maintain voltage levels and reactive power flows of its transmission system in real-time to protect equipment and maintain Voltage Stability of the transmission system. Each TSO shall be able to ensure adequate instantaneous reactive power reserve in order to secure the technical functioning of the transmission system and to restore a Normal State following a Contingency from the Contingency List.	In accordance with Article 6(4), each TSO shall endeavour to maintain the voltage within Operational Security Limits. Each TSO shall monitor, control and maintain voltage levels of its transmission system in real-time to protect equipment and maintain Voltage Stability of the transmission system. Each TSO shall be able to ensure adequate instantaneous reactive power reserve in order to secure the technical functioning of the transmission system and to restore a Normal State following a Contingency from the Contingency List.	Operational security limits do not define any reactive power flow limits.	technical	fundamental
DSO comment	8	3		Each TSO shall coordinate Operational Security analysis with all affected TSOs in order to ensure respecting of the Operational Security Limits of voltages in its Responsibility Area and within the Responsibility Areas of these other TSOs. Each TSO shall perform Operational Security analysis based on the forecast and real-time operational parameters.	Each TSO shall coordinate Operational Security analysis with all affected TSOs in order to ensure respecting of the Operational Security Limits of voltages in its **Control Area** and within the **Control Areas** of these other TSOs. Each TSO shall perform Operational Security analysis based on the forecast and real-time operational parameters.	At this level coordination should be assessed at transmission levels.	technical	fundamental
DSO comment	8	4	new b) & c)	Each Significant Grid User or DSO shall maintain reactive power limits at the Connection Point to the transmission system in a range defined in accordance with Article 6(5).	b) Each Significant Grid User connected to t**he Significant Distribution network** shall maintain voltage, **reactive power or power factor set-points for voltage control optimization in accordance with article 3(3). Set point of significant grid users connected to transmission will be defined by TSOs and significant grid users connected to distribution will be defined by DSOs**. **c) Each Significant DSO shall cooperate with the relevant TSO to maintain reactive power limits at the Connection Point to the transmission system in a range defined in accordance with Article 6(5).**	We suggest to split article 8.4 to consider significant grid users in a specific article. Regarding DSOs comments are being considered at article 8.12. Reactive compensation at the TSO-DSO connection point is not a suitable tool for maintainance of operational security. The reactive power flow is a result of balancing between voltages in TSO network and DSO network. It can provide alternative to transmission network development but at the cost of important investments and operational costs (losses) and constraints in distribution networks. Imposing it through the NC without appropriate CBA, it would result in a mere transfer of costs from TSOs to DSOs. All possible and additional solutions for regional control of reactive power and voltage must be considered. Decision on the reactive power exchange between TSO and DSO should be based on the result of a national CBA. In the latter case, agreement between TSOs and DSOs should be required. Any additional DSO costs need to be recovered. Where today conditions are defined in bi-lateral agrrements this system should be kept. The incurred costs need to be assessed by the NRA and borne by the real originator	technical	fundamental
DSO comment	8	6		Notwithstanding the provisions of the Article 8(4), a Power Generating Facility or Demand Facility shall automatically or manually, disconnect at specified voltages in the specified timeframe if required by the relevant TSO or DSO. The relevant TSO and DSO shall define the terms and settings for automatic disconnection while respecting the provisions of Article 3(3), Article 8(5) and the requirements specified for the whole Synchronous Area in the [NC RfG]. When the DSO defines this terms and settings, it shall obtain the TSO's approval. The relevant TSO and DSO shall insert these terms and settings for automatic disconnection in a contractual agreement with the Power Generating Facility Operators and/or Demand Facilities.	Notwithstanding the provisions of the Article 8(4), a Power Generating Facility or Demand Facility shall automatically or manually, disconnect at specified voltages in the specified timeframe if required by the **Significant** TSO or DSO. **The respective** TSO and DSO shall define the terms and settings for automatic or manual disconnection while respecting the provisions of Article 3(3), Article 8(5) and the requirements specified for the whole Synchronous Area in the [NC RfG]. **For distribution network connected facilities, DSO will define the terms of the disconnection and informing TSO who could propose modifications if Transmission system security is affected.**	Reactive compensation at the TSO-DSO connection point is not a suitable tool to maintain operational security.	technical	fundamental
DSO comment	8	7	new b)		**Each Significant DSO (just in its operated network), shall use all available reactive power resources necessary to ensure effective reactive power management within the Observability Area and within the Operational Security Limits.**	It can provide alternative to transmission network development but at the cost of important investments and operational costs (losses) and constraints in distribution networks. The incurred costs need to be assessed by the NRA and borne by the real originator of the cost.	technical	fundamental
DSO comment	8	8		Each TSO shall prepare Remedial Actions to cope with the potential or identified deviation from the voltage Operational Security Limits. The effectiveness of Remedial Actions shall be evaluated by the TSO. When the Remedial Actions are found ineffective, the TSO shall either adjust its Remedial Actions to render them effective or apply pre-fault Remedial Actions.	In accordance with article 3.3, each TSO shall prepare Remedial Actions to cope with the potential or identified deviation from the voltage Operational Security Limits. **If distribution network is affected, the Significant DSO shall participate in the process.**	Imposing it through the NC without appropriate CBA, it would result in a mere transfer of costs from TSOs to DSOs.	technical	fundamental
DSO comment	8	9		Each TSO shall monitor the respecting of operational voltage limits by Power Generating Facility Operators and Demand Facilities within its Responsibility Area, using real-time measurements of at least three of the following quantities: a) voltages; b) currents; c) active and reactive power flows; and d) node injections and withdrawals. These quantities, measured within the Observability Area of each TSO, shall refer to: e) transmission system elements; f) Power Generating Facilities connected to the transmission system; g) Demand Facilities connected to the transmission system; and h) aggregated values of Power Generating Facilities and Demand Facilities connected to a distribution system.	-	Delete this article - all this is already included in Chapter 4 on data exchange.	technical	editorial

	Article	Par.	S.par.	Initial	Proposed	Justification	Type of Comment	Nature of Comment
DSO comment	8	10		Each TSO shall operate or direct the operation of reactive power resources within its Responsibility Area including blocking of automatic voltage/reactive power control of transformers, voltage reduction and load-shedding measures, in order to maintain Operational Security Limits, to prevent out-of-limit voltage variations and to prevent voltage collapse of the transmission system.	Each TSO shall operate or direct the operation of reactive power resources **connected to its grid** within its **Control** Area including blocking of automatic voltage/reactive power control of transformers, voltage reduction and load-shedding measures, in order to maintain Operational Security Limits, to prevent out-of-limit voltage variations and to prevent voltage collapse of the transmission system.	DSO is responsible for managing the reactive power flows in its network.	technical	fundamental
DSO comment	8	12		Each TSO and each DSO shall maintain voltage and reactive power flows within the defined limits at the interconnection points between the transmission system and the distribution networks. If voltage deterioration jeopardizes Operational Security or threatens to develop into a voltage collapse, the TSO may direct DSOs and Significant Grid Users to block automatic voltage/reactive power control of transformers and/or to follow other Voltage Control instructions. As a consequence of these measures directed by the TSO, the DSO may have to disconnect Demand Facilities and/or Power Generating Facility Operators to avoid jeopardising the transmission system.	**In accordance with existing bilateral agreements or values defined in a procedure following art 3(3)**, each TSO and each **Significant** DSO shall **agree** and maintain voltage**, reactive power flows or power factor ranges** at the interconnection points between the transmission system and the distribution networks. If voltage deterioration ~~jeopardizes Operational Security~~ or threatens to develop into a voltage collapse, the TSO may direct DSOs and Significant Grid Users to block automatic voltage/reactive power control of transformers and/or to follow other Voltage Control instructions. As a consequence of these measures directed by the TSO, the DSO may have to disconnect Demand Facilities and/or Power Generating Facility Operators to avoid jeopardising the transmission system. **Should such actions lead to damages to these facilities, the costs have to be covered by the TSO.**	In a lot of countries exchange of rective power between TSO and DSO is governed by bilateral agreement and this should not change**.** An adequate CBA is needed for this requirement and reference to art. 3(3) should thus be added. Reactive power flows at the interconnection points between the Transmission and Distribution Networks shouldn't have limits to maintain voltage limits at these points. Voltage control requires a system approach (overall system security and losses optimisation). If Significant DSO does not participate, security standards may be not fulfilled at DSO voltage levels and losses may be not optimised. Sub-optimal investments might be triggered. **A blockage of voltage/reactive power control at the interconnection points might lead to inadmissible voltage level and damages to distribution network connected facilities. As there are contractual obligations between the DSO and its connected partners on voltage ranges this might lead to compensation claims.** **The costs should be covered by the TSO as the initiator of the blockage of automatic regulation mechanism. The blockage should only be allowed to avoid a voltage collapse.**	technical	fundamental
DSO comment	8	13		-	**Significant Power Generating facilities connected to DSO network shall cooperate with the Relevant DSO in voltage control management in accordance with article 3(3).**	Without this, DSO would not able to maintain voltage and reactive power at the T/D connection point. Voltage control requires a system approach in order to minimize losses. The incurred costs need to be assessed by the NRA and borne by the real originator of the cost.	technical	fundamental
DSO comment	9	1		In accordance with Article 6(4), each TSO shall maintain the short-circuit current within Operational Security Limits. Each TSO shall endeavour to ensure within its Responsibility Area, that the short-circuit current does not exceed the limits of the short-circuit capability of circuit breakers and other equipment and that the short-circuit current is not lower than the current required for correct operation of the protection equipment at any time. This condition has to be fulfilled for all Fault types and for all protection equipment, with a deviation from this condition allowed only during switching sequences.	In accordance with Article 6(4), each TSO shall maintain the short-circuit current within Operational Security Limits. Each TSO shall endeavour to ensure within its **Control** Area, that the short-circuit current does not exceed the limits of the short-circuit capability of circuit breakers and other equipment and that the short-circuit current is not lower than the current required for correct operation of the protection equipment at any time. This condition has to be fulfilled for all Fault types and for all protection equipment, with a deviation from this condition allowed only during switching sequences.	The security limits for the short-circuit current are maintained by DSO at distribution level.	technical	fundamental
DSO comment	9	5		Each TSO shall perform short-circuit calculations in order to evaluate the impact of neighbouring transmission systems and connected distribution networks on the short-circuit current level. If the impact of a connected distribution network is significant, the distribution network has to be modelled in the transmission short-circuit calculations with the level of detail which is needed for successful calculations, using where applicable the equivalents with sufficient degree of detail and accuracy.	**In accordance with Article 6(4)**, each TSO shall perform short-circuit calculations in order to evaluate the impact of neighbouring Transmission Systems and connected Distribution Networks on the short-circuit current level. **The short-circuit current shall not exceed the limits of the short-circuit capability of circuit breakers and other equipment and the short-circuit current shall not be lower than the current required for correct operation of the protection equipment at any time**. If the impact of a connected Distribution Network is significant, the Distribution Network has to be modelled in the transmission short-circuit calculations with the level of detail which is needed for successful calculations (**Observability Area**), using where applicable the equivalents with sufficient degree of detail and accuracy.	It should be restricted to "observability area" network defined by NRA in coordination with TSO and DSO. Is the correct calculation the only object of a higher short-circuit current? Quick recovery after fault?	technical	fundamental
DSO comment	10	2		Each TSO shall coordinate Operational Security analysis with all affected TSOs in order to ensure the respecting of the Operational Security Limits of power flows in its Responsibility Area. Each TSO shall perform Operational Security analysis based on the forecast and real-time operational parameters.	Each TSO shall coordinate Operational Security analysis with all affected TSOs in order to ensure the respecting of the Operational Security Limits of power flows in its **Control** Area. Each TSO shall perform Operational Security analysis based on the forecast and real-time operational parameters.	The security limits for the power flows are maintained by DSO at distribution level.	technical	fundamental
DSO comment	10	6		In accordance with Article 10(7) and (8), each TSO shall be entitled to redispatch available Power Generating Facilities and Demand Facilities connected to the transmission system or to the distribution networks if it is necessary to prevent deviations from the power flow Operational Security limits in the transmission system.	In accordance with Article 10(7) and (8), each TSO shall be entitled to Redispatch available Significant Power Generating Facilities and Demand Facilities connected to the Transmission Network or to Significant Distribution Networks **through the corresponding DSO** if it is necessary to prevent deviations from the power flow Operational Security limits in the Transmission System, in accordance with article 3.3. Redispatch instructions shall always be issued in accordance with commercial arrangements (e.g. the Balancing Principles Statement).	DSOs should do this redispatch to all the power generating facility operators and demand facilities connected to the networks they manage. TSO mustn't give instructions directly. It is necessary to ensure that no redispatch takes place outside the relevant commercial frameworks which are used in some countries to purchase balancing and other ancillary services, including redispatch, on commercial terms. Otherwise, these commercial / market frameworks will be undermined.	technical	fundamental
DSO comment	10	8		While respecting the provisions of Article 3(3), each TSO shall define Redispatch measures in coordination with DSOs before real-time to determine those Grid Users connected to distribution networks which may be re-dispatched. Each TSO shall inform the affected DSO of Redispatch measures affecting Power Generating or Demand Facilities connected to its distribution networks.	While respecting the provisions of Article 3(3), each TSO shall define Redispatch measures in coordination with DSOs before real-time to determine **which Significant** Grid Users connected to distribution networks which may be re-dispatched, taking into account the security of the distribution network. Each TSO shall **inform the affected DSO of** Redispatch measures **affecting Power Generating or Demand Facilities** connected to its Distribution Networks, **who will execute it if distribution network is not jeopardized. Otherwise, the affected DSO will provide TSO with an equivalent effect at T/D connection point with an action that is safe for the distribution network.**	Redispatch measures to be evaluated by DSO, otherwise overall system security and cross border flows may be affected. The Redispatch measures affecting the connected distribution networks shall maintain the operational security of the distribution network. To clarify that this applies only to Significant Grid Users and not to all Grid Users. Redispatch measures have to be in line with agreed defense plans or other remedial action plans as defined in a procedure following Art 3.3 respecting basic rules agreed on regional level and in line with provisions in NC CACM	technical	fundamental
DSO comment	10	10		Each TSO shall monitor power flows within its Responsibility Area and on its Interconnections based on the real-time telemetry and measurements from its own Responsibility Area and from the Responsibility Areas of the TSOs within its Observability Area.	Each TSO shall monitor power flows within its **Control** Area and on its Interconnections based on the real-time telemetry and measurements from its own **Control Area** and from the **Control** Areas of the TSOs within its Observability Area.	DSO is responsible for monitoring power flows in its distribution network.	technical	fundamental

	Article	Par.	S.par.	Initial	Proposed	Justification	Type of Comment	Nature of Comment
DSO comment	10	12		Each TSO shall perform power flow Operational Security analysis in real-time, based on real-time measurements of voltages, currents, power flows, injections and withdrawals in its own Observability Area, of: a) transmission system elements; b) Power Generating Facilities and Demand Facilities connected to transmission system; c) relevant aggregated values of Power Generating Facilities and Demand Facilities connected to distribution systems.	Each TSO shall perform power flow Operational Security analysis in real-time, based on real-time measurements of voltages, currents, power flows, injections and withdrawals in its own Observability Area, of: a) transmission system elements; b) Power Generating Facilities and Demand Facilities connected to transmission system; c) aggregated values of Power Generating Facilities and Demand Facilities connected to **a Distribution System provided by DSO at T/D connection point.**	DSO is responsible for maintaining operational security in its network, so DSO has to monitor all the connected elements, and provide the information at the point where TSO is affected, the connection point. To be able to include not measurable effects, also simulations can be used.	technical	fundamental
DSO comment	10	14		Add new Article	**In accordance with article 3(3), each Significant DSO shall be entitled to Redispatch available Power Generating Facilities and Demand Facilities connected to the Distribution Networks if it is necessary to prevent deviations from the power flow Operational Security limits in the Distribution System.**	Transmission Operational limits and, therefore, overall system security and cross border flows may be affected by Security limits in Distribution Networks. The costs shall be borne by the real originator (in case of underdimensioning of the network, these costs are an incentive to strengthen the Network).	technical	fundamental
DSO comment	10	15		Add new Article	**In accordance with article 3(3), each Significant DSO shall be entitled to use flexibilty offerings and curtailment from available Power Generating Facilities and Demand Facilities connected to the Distribution Networks if it is necessary to prevent deviations from the power flow Operational Security limits in the Distribution System.**	Transmission Operational limits and, therefore, overall system security and cross border flows may be affected by Security limits in Distribution Networks. The costs shall be borne by the real originator (in case of underdimensioning of the network, these costs are an incentive to strengthen the Network).	technical	fundamental
DSO comment	11			CONTIGENCY ANALYSIS AND HANDLING	Remark: a periodicity to share information between TSOs and DSOs (bidirectional communication) should be defined in order to accomplish the reciprocity principle. **Also, the use of the term "contingency" should be clarified. The code needs to be improved taking in consideration necessities from operability of power plants by respecting the points given in the justification**	**The definition of Contingency refers only to the Control Area, but the term Control Area is not used at all-in this article. Article 11 uses mainly the term Observability Area. Please clarify.**	technical	fundamental
DSO comment	11	2		Each TSO shall perform Contingency analysis on the basis of the forecast and real-time system operation parameters. Each TSO shall ensure that potential deviations from the (N-1)-Criterion which are identified by the Contingency analysis of Internal and External Contingencies in its Responsibility Area do not endanger the Operational Security of its transmission system or of the interconnected transmission systems. TSO can decide not to apply Remedial Actions considered as too expansive in accordance with its national legislation if the potential Disturbances are local and they do not impact the Operational Security of the interconnected transmission systems.	Each TSO shall perform Contingency analysis on the basis of the forecast and real-time system operation parameters. Each TSO shall ensure that potential deviations from the (N-1)-Criterion which are identified by the Contingency analysis of Internal and External Contingencies in its Responsibility Area do not endanger the Operational Security of its Transmission System or of the interconnected Transmission Systems. TSO can decide not to **adopt and implement costly** Remedial Actions in accordance with its **local rules and procedures** if the potential Disturbances are local and they do not impact the Operational Security of the interconnected Transmission Systems and the operational security of the grid users connected.	It is not acceptable that a TSO has the right to not react at emergency situations if international trade is not endangered. Who/How is decided the impact on the international trade? Remedial Actions should be taken into account although the potential Disturbances are local if they impact the Operational Security of the "local" Electric System. DSOs network shouldn't be the N-1 of Transmission Network unless it is properly defined and paid for. It is not acceptable to ignore Remedial Actions if this may result in unreasonably adverse impacts on Grid Users. Hence, an assessment is required to compare the costs of the actions against the benefits of the actions. Clear definition/ criteria of "too expansive" is necessary probably only technical issues to be mentiined	technical	fundamental
DSO comment	11	4	a	Each TSO shall classify Contingencies for its own Responsibility Area.	Each TSO shall classify Contingencies for its own **Control** Area.	DSO is in charge of managing the contingencies in its network.	technical	fundamental
DSO comment	11	10		In order to perform Contingency analysis and other Operational Security analyses, each TSO shall use and provide to the other TSOs the consumption and generation forecast for its Responsibility Area.	In order to perform Contingency analysis and other Operational Security analysis, each TSO shall use and provide to the**ir connected DSOs and** other TSOs the consumption and generation forecast for its Responsibility Area.	DSOs need information to operate their distribution system.	technical	fundamental
DSO comment	11	11		Each TSO shall ensure that the model of its Observability Area used for Contingency analysis is based upon a sufficient amount of accurate real-time data and gathers information on its own network and at least Demand and Power Generation Facilities and network elements of the neighbouring transmission systems.	Each TSO shall ensure that the model of its Observability Area used for Contingency analysis is based upon a sufficient amount of accurate real-time data and gathers information on its own network and at least Demand and Power Generation Facilities **connected to Transmission System** and network elements of the neighbouring Transmission Systems.	Demand and Power Generation Facilities connected to Transmission System are relevant to contingency analysis. The demand and power generation facilites connected to Distribution System shouldn't be considered unless they were in the Observability Area.	technical	fundamental
DSO comment	11	12		Each DSO and Significant Grid User shall cooperate and deliver all information for Contingency analysis as requested by the TSO, including forecast and real-time data, with possible data aggregation in line with Article 25(1).	Each **Significant** DSO and Significant Grid User shall cooperate and deliver **necessary** information for Contingency analysis as requested by the TSO, **in accordance with article 3.3** including forecast and real-time data, with possible data aggregation in line with the Article 25(1) **of this NC. TSO will deliver all necessary information to each Significant DSO.**	**1. TSO's requests should be agreed with the Parties and the NRA, in accordance with 3.3** 2. TSOs should also deliver information to DSO and define periodicity of this information interchange.	technical	fundamental
DSO comment	11	20		After de-synchronization and when requested by a TSO, each DSO shall ensure that each relevant Significant Grid User connected to the distribution network and identified by the TSO obtains the permission to re-synchronize from its DSO and from its TSO via its DSO prior to its re-synchronization.	**Where the TSO wishes to propose any regime whereby Significant Grid Users need to obtain TSO or DSO permission before resynchronization, the TSO shall make such a proposal accompanied by an appropriate cost benefit analysis for approval by the NRA.**	There is currently no systematic way for enabling this. So any proposal needs to have a full CBA before it becomes binding law.	technical	fundamental
DSO comment	11	21		-	**If concerned facilities are connected to distribution networks, affected Significant DSO should be considered in the process of Contingency analysis and Handling.**	Not involving Significant DSO in the process affecting its network could endanger distribution network. This could affect overall system security and cross border flows.	technical	fundamental
DSO comment	14	2		Each TSO retains the right, based on operational monitoring, continuously, or periodically for subsequent periods of time, to evaluate by data recording, examination and analysis, a Significant Grid User's compliance with its connection and operating conditions in accordance with Article 14(3), declared availability and contracted provision of Ancillary Services. It does not require advance notification from a TSO to Significant Grid Users.	Each TSO **or Significant DSO** retains the right, based on operational monitoring, continuously, or periodically for subsequent periods of time, to evaluate by data recording, examination and analysis, a Significant Grid User's compliance with its connection and operating conditions in line with Article 15(3), declared availability and contracted provision of Ancillary Services. It does not require advance notification from a TSO **or DSO** to Significant Grid Users.	Significant Grid User connected to Distribution System should be managed by DSO.	technical	fundamental
DSO comment	14	10		Each TSO shall have Operational Security of its own transmission system and Responsibility Area as its main concern during testing. Any test may be postponed or interrupted due to unplanned system conditions as assessed by the TSO.	add: Any test may be postponed or interrupted due to an unplanned risk arising for operational safety or other major negtive impact on an affected power generating facility or DSO.	Also security of power plants and distribution grid has to be taken in consideration	technical	fundamental
DSO comment	14	11		Each TSO can request additional tests to be performed by the DSOs or Significant Grid Users, if they are deemed necessary to maintain and develop operational procedures, to train staff, or to acquire information of transmission system or equipment behaviour under certain system conditions.	add/change: The involved parties can agree on additional tests to be perfomed by Significant DSOs or … . with adequate justification..... . Additional tests are only possible when that is in line with the safety understanding of the requested plant - the TSO takes over the liability for the plant during the additional tests.	Too general. TSO has possibility to require anything. Others articles are more precise and are sufficient. The involved parties can agree on additional tests to be perfomed … . The reasons for that are not adequate justification for additional tests. Only possible when that is in line with the safety understanding of the requested plant - the TSO takes over the liability for the plant during the additional tests, because its at his request and therefore at his risk.	technical	fundamental

	Article	Par.	S.par.	Initial	Proposed	Justification	Type of Comment	Nature of Comment
DSO comment	14	12		In case of System State degradation, the TSO of the transmission system in which the testing is performed shall be entitled to stop the testing and deploy any measures to return to a Normal State as soon as	add: Power Generating Facilities and/ or DSOs are entitled to stop the test if the operational safety of the plant/ their imstallations is threatened or affected.	Significant grid users should be able to stop the tests when the safety of their equipment is affected.	technical	fundamental
DSO comment	14	15		After an incident classified as level 2 according to the common incidents classification scale adopted by ENTSO-E by application of the Article 8(3)(a) of the Regulation (EC) N°714/2009, the TSOs involved shall carry out a joint investigation to analyse the reasons for the incident and to adjust the existing operational procedures, if required.	After an incident classified as level 2 according to the common incidents classification scale adopted by ENTSO-E by application of the Article 8(3)(a) of the Regulation (EC) N°714/2009, **and identified as ....** the TSOs involved shall carry out a joint investigation to analyse the reasons for the incident and to adjust the existing operational procedures, if required.	Please specify what is an incident level 2 in this code.	technical	editorial
DSO comment	14	17		TSO shall provide to affected TSOs at least the following information on the test: a) details and timing of the test; b) plans for accommodation of the test.	TSO shall provide to affected TSOs **and Significant DSOs** at least the following information on the test: a) details and timing of the test; b) plans for accommodation of the test.	Significant DSOs need this information too.	technical	fundamental
DSO comment	15	4		Each TSO shall adhere to the organisational requirements, roles and responsibilities in relation to the data exchange, which are agreed upon and implemented at the level of ENTSO-E for all TSOs. This shall encompass the following issues: a) obligations among the TSOs to communicate without undue delay to all neighbouring TSOs, any changes in the protection settings, thermal limits and technical capacities at the interconnections between the their Control Areas; b) obligations of the Relevant DSOs to inform without undue delay their TSOs of any changes in the data and information scope and contents from Chapter 4 of this Network Code; c) obligations of the Significant Grid Users connected to the transmission system to inform their TSO about any relevant change in the scope and contents of the relevant data from Chapter 4 of this Network Code.	Each TSO shall adhere to the organisational requirements, roles and responsibilities in relation to the data exchange, which are agreed upon and implemented at the level of ENTSO-E for all TSOs, and **in line with article 3.3**. This shall encompass the following issues: a) obligations among the TSOs to communicate without undue delay to all neighbouring TSOs **and impacted DSOs**, any changes in the protection settings, thermal limits and technical capacities at the interconnections between the their Control Areas; b) obligations of **TSO and** Significant DSOs to inform **each other upon previous agreement and** without undue delay of any changes in the data and information scope and contents from Chapter 4 of this Network Code; c) obligations of the Significant Grid Users connected to the transmission system to inform their TSO about any relevant change in the scope and contents of the relevant data from Chapter 4 of this Network Code.	For a) It is the reciprocal of the obligation of the DSO. For b) DSO is responsible for maintaining operational security in its network, so he has the need of knowing any change in the scope of the information. Otherwise overall system security and cross border flows may be affected. **Previous agreements and technically constrains shall be considered between DSO and TSO, in order to avoid unnecesary additional costs or contradict existing agreements.**	technical	fundamental
DSO comment	16	1		Neighbouring TSOs shall exchange the structural information related to the Observability Area including at least: a) substations' regular topologies and other relevant data by voltage level; b) transmission lines; c) transformers connecting the DSOs, Demand Facilities and generators' block-transformers of Power Generating Facilities; d) phase-shifting transformers; e) high voltage DC lines; and f) reactors, capacitors and Static VAR Compensators.	Neighbouring TSOs shall exchange the structural information related to the **TSO** Observability Area, **which shall comprise at** least: a) substations' regular topologies and other relevant data by voltage level; b) transmission lines; c) transformers connecting the DSOs, Demand Facilities and generators' block-transformers of Power Generating Facilities; d) phase-shifting transformers; e) high voltage DC lines; and f) reactors, capacitors and Static VAR Compensators.	Observability area could involve DSO or TSO. Therefore in this article should be clarified that this observability area applies to TSOs.	technical	fundamental
DSO comment	17	2		Each TSOs shall exchange with its neighbouring TSOs the following data related to the Observability Area referred: a) actual topology; b) active and reactive power in line bay; c) active and reactive power in transformer bay; d) active and reactive power in Power Generating Facility bay; e) active and reactive injections and withdrawals of generation, demand and subsequent DSOs; f) regulating positions of transformers, including phase-shifting transformers; g) measured or estimated busbar voltage; h) reactive power in reactor and capacitor bay or from a static VAR compensator; and i) restrictions on active and reactive power supply capabilities with respect to the Observability Area.	Each TSOs shall exchange with its neighbouring TSOs the following data related to the **TSO** Observability Area referred: a) actual topology; b) active and reactive power in line bay; c) active and reactive power in transformer bay; d) active and reactive power in Power Generating Facility bay; e) active and reactive injections and withdrawals of generation, demand; f) regulating positions of transformers, including phase-shifting transformers; g) measured or estimated busbar voltage; h) reactive power in reactor and capacitor bay or from a static VAR compensator; and i) restrictions on active and reactive power supply capabilities with respect to the Observability Area.	Observability area could involve DSO or TSO. Therefore in this article should be clarified that this observability area applies to TSOs. Need to clarify what this means and why DSOs are cited in e).	technical	fundamental
DSO comment	18	1		Each TSO shall define the Observability Area of the distribution networks connected to its transmission system which are relevant to accurately and efficiently determine the System State of the transmission system.	**In agreement with the concerned DSO and in accordance with article 3.3** each TSO shall define the Observability Area of the distribution networks connected to its transmission system which are relevant to accurately and efficiently determine the System State of the transmission system. **Relevant DSOs shall define as well the observability area of the transmission System and neighbouring DSOs to accurately and efficiently determine the system state of the distribution system.**	TSO has to provide relevant necessary data (Structural data, Operational planning & scheduling data and Real-time data) to DSOs. Otherwise overall system security and cross border flows may be affected.	technical	fundamental
DSO comment	18	2		Each DSO connected to the transmission system shall provide to its TSO the structural information related to the Observability Area referred to in Article 18(1) including, but not limited to, : a) substations directly connected to the transmission system, by voltage; b) lines connected to the substations from a) above; c) transformers from the substations from a) above; d) Power Generating Facilities and Demand Facilities of relevance for the Operational Security of the transmission system; and e) reactors and capacitors of relevance for the Operational Security of the transmission system.	Each DSO connected to the transmission system shall provide to its TSO the structural information related to the Observability Area referred to in Article 18(1) including : a) substations directly connected to the transmission system, by voltage; b) lines connected to the substations from a) above; c) transformers from the substations from a) above; d) **Significant grid users**; and e) reactors and capacitors of relevance for the Operational Security of the transmission system. **TSO shall also provide the same structural information to Significantt DSO regarding the part of the Transmission System affecting distribution network.**	Check the consistency of this article with the previous articles to avoid overlaps. All this information is already required in other articles. It may not be necessary to ask for them twice. At the mean time, it must be noted that the exchange of information has to be recipocal. If DSO does not know the info, distribution network operational security could be affected, and then overall system security and cross border flows may be affected. For d) For cross border performances via influence on the Control Area's security of supply /Transmission system Operational Security.	technical	fundamental

	Article	Par.	S.par.	Initial	Proposed	Justification	Type of Comment	Nature of Comment
DSO comment	18	3		Each DSO connected to the transmission system shall provide the TSO with updated structural information of the elements of the Observability Area every time it changes.	Each DSO connected to the Transmission System shall provide the TSO with updated structural information of the elements of the Observability Area every time it changes. **Significant DSOs shall define as well the observability area of the transmission System and neighbouring DSOs to accurately and efficiently determine the system state of the distribution system.**	Significant DSO needs also to perform a real-time monitoring and modelling to ensure reliability of its network and to avoid affecting overall system security and cross border flows. Reciprocity principle: data exchange DSO to TSO and TSO to Significant DSO. TSO's parameters may change on a connexion point (i.e. all parameters necessary to the connexion agreement (ex:Pcc, Voltage min and max, Activ Power capacity,...).	technical	fundamental
DSO comment	18	4		Each DSO exchanging the data with the TSO shall also provide historical data of up to three years in the past if necessary and required by the TSO.	Each DSO exchanging the data with the TSO shall also provide historical data of up to three years in the past if necessary, **available, not contradicting with previous agreements**	**Previous agreements and technically constrains shall be considered between DSO and TSO, in order to avoid unnecesary additional costs or contradict existing agreements.**	technical	fundamental
DSO comment	19			RELEVANT REAL-TIME DATA EXCHANGED BETWEEN TSOs AND DSOs WITHIN THE TSO's RESPONSIBILITY AREA	REAL-TIME DATA EXCHANGED BETWEEN TSOs AND **Significant** DSOs WITHIN THE TSO's **OBSERVABILITY** AREA General comment on art. 19: For operational security it is more important how the load flow occurs in the transmission network, than how the load flow occurs in the distribution network. - load flow of a Transmission line 1600 MVA - Load flow in a transformer 380/110 - 300 MVA - load flow in a 110 kV line 120 MVA	The word 'Significant' could make confusion due to its utilization within the document in other articles. Moreover, the title reads "responsibility area" while the content of the article refers to the observability area.	technical	editorial
DSO comment	19	1		Each DSO connected to the transmission system shall provide in real-time to its TSO the information related to the Observability Area referred to in Article 18(1), which is relevant for the Operational Security of the transmission system comprising: a) actual topology; b) active and reactive power in line bay; c) active and reactive power in transformer bay; d) active and reactive power injection in Power Generating Facility bay; e) active and reactive power withdrawals and injections of any subsequent DSOs and of Demand Facilities; f) tap positions of transformers; g) busbar voltages; and h) reactive power in reactor and capacitor bay	**Where the TSO has made an appropriate case and CBA that has been accepted by the NRA, each Significant** DSO connected to the Transmission System shall provide in real-time to its TSO the information related to the Observability Area referred to in Article 18(1), which is relevant for the Operational Security of the Transmission System comprising: a) actual topology **of connexion point**; b) active and reactive power in line bay; c) active and reactive power **at the connexion point**; d) active and reactive power **withdrawals and** injection**s of any subsequent Relevant DSOs and of Significant Grid Users** **e**) busbar voltages **at connexion point.**	The real time provision of much of this information is a new requirement. Such requirements will lead to significant costs forDSOs. A CBA is needed to demonstrate the return on the new investment to achieve these ends. If the CBA is positive, a transitional period of several years would be necessary. For d) and e): Why would the TSO need to know about the withdrawels of a DSO connected at LV to the host DSO? For a) to h): Not very clear. DSO has to provide TSO aggregated data if necessary, and no detail.	technical	fundamental
DSO comment	19	2		-	**The same data regarding Significant DSO Observability area shall be provided by the TSO to the Relevant DSO.**	If DSO does not know the info, distribution network operational security could be affected, and then overall system security and cross border flows may be affected.	technical	fundamental
DSO comment	20	5		Each Interconnection owner shall provide at least the following data to the TSO: a) general data of the AC or HVDC Interconnection; b) transformers' data; c) data on filters and filter banks; d) reactive compensation data; k) data necessary for performing dynamic simulation; l) protection data; and e) reactive power control capability.	Each Interconnection owner shall provide at least the following data to the TSO, **upon previous agreement and if technically feasible:** a) general data of the AC or HVDC Interconnection; b) transformers data; c) data on filters; d) reactive compensation data; **e**) data necessary for performing simulation; **f**) protection data; and **g**) reactive power control capability.	Correction of the lettering. Point l) m) and e) should be replaced by e), f) and g) **Previous agreements and technically constrains shall be considered between DSO and TSO, in order to avoid unnecesary additional costs or contradict existing agreements. For instance, the need of installation of new equipments in systems that are not critical for the overall operation security of the system.** **Data necessary for performing dynamic simulation is not current practive in many DSOs. This additional requirement will increase the cost of the system. The decision on the dynamic data exchange between TSO and DSO should be based on the result of a national CBA. In the latter case, agreement between TSOs and DSOs should be required. Any additional DSO costs need to be recovered.**	technical	editorial
DSO comment	21	7		Each Interconnection owner shall provide the following data to the TSOs: a) scheduled unavailability or active power restriction; b) scheduled unavailability or forecast restrictions of filter banks or reactive compensation that form part of the Interconnection; and c) scheduled active power transfers and reactive output levels.	Each Interconnection owner shall provide the following data to the TSOs**, if technically feasible**: a) scheduled unavailability or active power restriction; b) scheduled unavailability or forecast restrictions of filter banks or reactive compensation that form part of the Interconnection; and	**Scheduled active and reactive powers transfers are unpredictable in DSO Networks with a high amount of dezentralised generation (Wind or solar). Therefore, this theoretical schedule would be imprecise.** **All possible and additional solutions must be considered.**		
DSO comment	23			STRUCTURAL DATA EXCHANGED BETWEEN DSOs AND GENERATING FACILITIES CONNECTED TO THE DISTRIBUTION SYSTEM	STRUCTURAL DATA EXCHANGED BETWEEN **Significant** DSOs AND GENERATING FACILITIES CONNECTED TO THE DISTRIBUTION SYSTEM	The article should apply only for Significant DSOs. Consistency with other network codes should be ensured (all these information are already required in compliance and notification procedures within the network code RfG).	technical	fundamental
DSO comment	23	1		Each type B, C and D Power Generating Facility Operator according to Article 3 of the [NC RfG] shall provide the following data to the DSO: a) general data of the power plant which are relevant for Operational Security: installed capacity and primary energy source or fuel type; b) turbine and Power Generating Facility data including necessary time for cold and warm start; c) transformer data; d) Frequency Containment Reserve data; e) Frequency Restoration Reserve data for plants that participate in this service; f) data necessary for Restoration; g) protection data; h) reactive power control capability; i) remote access to the circuit breaker; and j) data and model of Power Generating Facility in the format specified by the TSO according to Article 13.	Each type B, C and D Power Generating Facility Operator according to Article 3 of the [NC RfG] shall provide the following data to the DSO: a) general data of the power plant which are relevant for Operational Security: installed capacity and primary energy source or fuel type; b) turbine and Power Generating Facility data including necessary time for cold and warm start; d) Frequency Containment Reserve data; e) Frequency Restoration Reserve data for plants that participate in this service; f) data necessary for Restoration; g) protection data; h) reactive power control capability; i) remote access to the circuit breaker; and j) data and model of Power Generating Facility in the format specified by the TSO according to Article 13.	c) included in a), thus not needed. Remarks: This chapter mixes datas, functions (remote access), it has to be simplified, precised and detailed. B,C and D relate to Modules, not facilities. Due to inappropriate definitions in NC RfG.	technical	fundamental
DSO comment	23	2		-	**Significant Power Generating Facility Operators shall inform their DSO about any relevant change in the scope and contents of the data of this article.**	Network model should be updated to ensure control and supervision of distribution networks and, therefore, the overall system security and cross border flows.	technical	fundamental
DSO comment	25			REAL-TIME DATA EXCHANGED BETWEEN DSOs AND GENERATORS CONNECTED TO THE DISTRIBUTION SYSTEM	REAL-TIME DATA EXCHANGED BETWEEN **Significant** DSOs AND GENERATORS CONNECTED TO THE DISTRIBUTION SYSTEM	The article should apply only for relevant DSOs.	technical	fundamental

	Article	Par.	S.par.	Initial	Proposed	Justification	Type of Comment	Nature of Comment
DSO comment	25	1		Each Significant Grid User which is a type B, C or D Power Generating Facility according to Article 3 of the [NC RfG] shall provide to the DSO in real-time the following information: a) status of the switching devices and circuit breakers at the Connection Point; b) active and reactive power flows, including the direction, and voltage at the Connection Point; and c) remote disconnection capability of the circuit breaker.	Remark: Should be aligned with 9.5.d.1 of the NC RfG. b) active and reactive power flows, including the direction, **current** and voltage at the Connection Point; and	This allows for periodic data transfer with time stamping. It should be clear if this is to be retrospective. It is not in the NC RfG, but it needs to be harmonized here. Current is very important in distribution networks for control and supervision and for redundancy.	technical	fundamental
DSO comment	26	1		Power Generating Facility Operators and DSOs shall provide to the TSO all the information described in Articles 23 to 25 if requested by the TSO.	To be deleted	This information will be provided via DSO. All the required info from generators connected to distribution level to TSO would be provided via DSO, in order to look for the efficiency of the system. DSOs and TSOs network models should have the same data within the shared part of their observability areas in order to be consistent at the security analysis.	technical	fundamental
DSO comment	26	2		A TSO may request further data from any Power Generating Facility Operator connected to the distribution network, if this is necessary for Operational Security analysis, or if, after aggregation of data, the significance of a particular Power Generating Facility is raised in terms of Operational Security.	To be deleted	This information will be provided via DSO. All the required info from generators connected to distribution level to TSO would be provided via DSO, in order to look for the efficiency of the system. DSOs and TSOs network models should have the same data within the shared part of their observability areas in order to be consistent at the security analysis.	technical	fundamental
DSO comment	28	1		Each Demand Facility connected to the distribution network which participates in demand side response shall communicate to its DSO and TSO in real-time the minimum and maximum active power which can be curtailed and active and reactive power at the high voltage side of the transformer.	Each Demand Facility connected to the distribution network which participates in demand side response shall communicate to its **Significant** DSO, **who will send the relevant information to the** TSO in real-time the minimum and maximum active power which can be curtailed and active and reactive power at the high voltage side of the transformer.	In order to not to duplicate communication channels, DSO should gather the requested information and provide it to TSO.	technical	fundamental
DSO comment	28	3		Each Demand Facility connected to the distribution network which participates in DSM shall communicate to its DSO and TSO in real-time the active and reactive power at the high voltage side of the transformer	Each Demand Facility connected to the distribution network which participates in DSM shall send to its S**ignificant** DSO **who will send it th**e TSO in real-time the active and reactive power, **upon agreement if if technically feasible**, **at the Connection Point.**	In order not to duplicate communication channels, DSO should gather the requested information and provide it to TSO. Previous agreements and technically constrains shall be considered between DSO and TSO, in order to avoid unnecesary additional costs or contradict existing agreements. For instance, there is no need of new installation of measurement equipments in the high voltage side of the connection point, where there are already measurement equipment in the low voltage side of the transformer. Also, this is unclear in cases where the high voltage side of the transformer do no belongs the DSO or demand facility. In accordance with NC DCC, active and reactive Power are measured at the Connection Point.	technical	fundamental
DSO comment	29	11		TSO shall co-ordinate with DSOs, Power Generating Facility Operators and directly connected Demand Facilities to ensure TSO offline training regarding the impact of users' systems is as comprehensive as reasonably practical and reflects the latest developments in systems and equipment. TSOs and Significant Grid Users may run joint offline training simulations or training workshops for their System Operator Employees to enhance co-operation and understanding.	TSO shall co-ordinate with DSOs, Power Generating Facility Operators and directly connected Demand Facilities to ensure TSO offline training regarding the impact of users' systems is as comprehensive as reasonably practical and reflects the latest developments in systems and equipment. TSOs, **DSOs** and Significant Grid Users may run joint offline training simulations or training workshops for their System Operator Employees to enhance co-operation and understanding.	DSOs should be able to join offline training simulations or training workshops. DSOs are not Grid Users.	technical	fundamental
DSO comment	30	2		Before initiating any modification, each Significant Grid User shall notify to the relevant TSO or DSO any planned modification of its technical capabilities which could have an impact on its compliance with the requirements of this Network Code.	Before initiating any modification, each Significant Grid User shall notify to **the operator of which network he is connected to** any planned modification of its technical capabilities which could have an impact on its compliance with the requirements of this Network Code.	If the Significant Grid User is connected to Distribution System, any planned modification of its technical capabilities must be notified to its DSO.		
DSO comment	30	3		Each Significant Grid User shall notify to the relevant TSO or DSO any operational disturbance on its facility which could have an impact on its compliance with the requirements of this Network Code as soon as possible and without any delay after its occurrence.	Each Significant Grid User shall notify to the relevant TSO **and** DSO any operational disturbance on its facility which could have an impact on its compliance with the requirements of this Network Code as soon as possible and without any delay after its occurrence.	If the Significant Grid User is connected to Distribution System, any planned modification of its technical capabilities must be notified to its DSO.	technical	fundamental
DSO comment	30	4		In order to allow the relevant TSO or DSO to evaluate and mitigate where necessary the risks to the transmission system or distribution networks, each Significant Grid User shall notify to the relevant TSO or DSO any foreseen test schedules and procedures to verify compliance of a Significant Grid User's facility with the requirements of this Network Code. The relevant TSO or DSO shall approve these foreseen test schedules and procedures prior to their launch.	In order to allow the relevant TSO **and** DSO to evaluate and mitigate where necessary the risks to the transmission system or distribution networks, each Significant Grid User shall notify to the relevant TSO **and** DSO any foreseen test schedules and procedures to verify compliance of a Significant Grid User's facility with the requirements of this Network Code. The relevant TSO **and** DSO shall approve these foreseen test schedules and procedures prior to their launch.	If the Significant Grid User is connected to Distribution System, DSO must be notified and must approve test schedules and procedures prior to their launch.	technical	fundamental
DSO comment	30	5		The Significant Grid User shall enable the participation of the relevant TSO or DSO in such tests. The relevant TSO or DSO shall have the right to record the performance of the facilities of the Significant Grid Users.	The Significant Grid User shall enable the participation of the relevant TSO **and** DSO in such tests. The relevant TSO **and** DSO shall have the right to record the performance of the facilities of the Significant Grid Users.	If the Significant Grid User is connected to Distribution System, DSO must be enabled.	technical	fundamental